

# Master in Artificial Intelligence



## Research and Innovation III







# Purpose

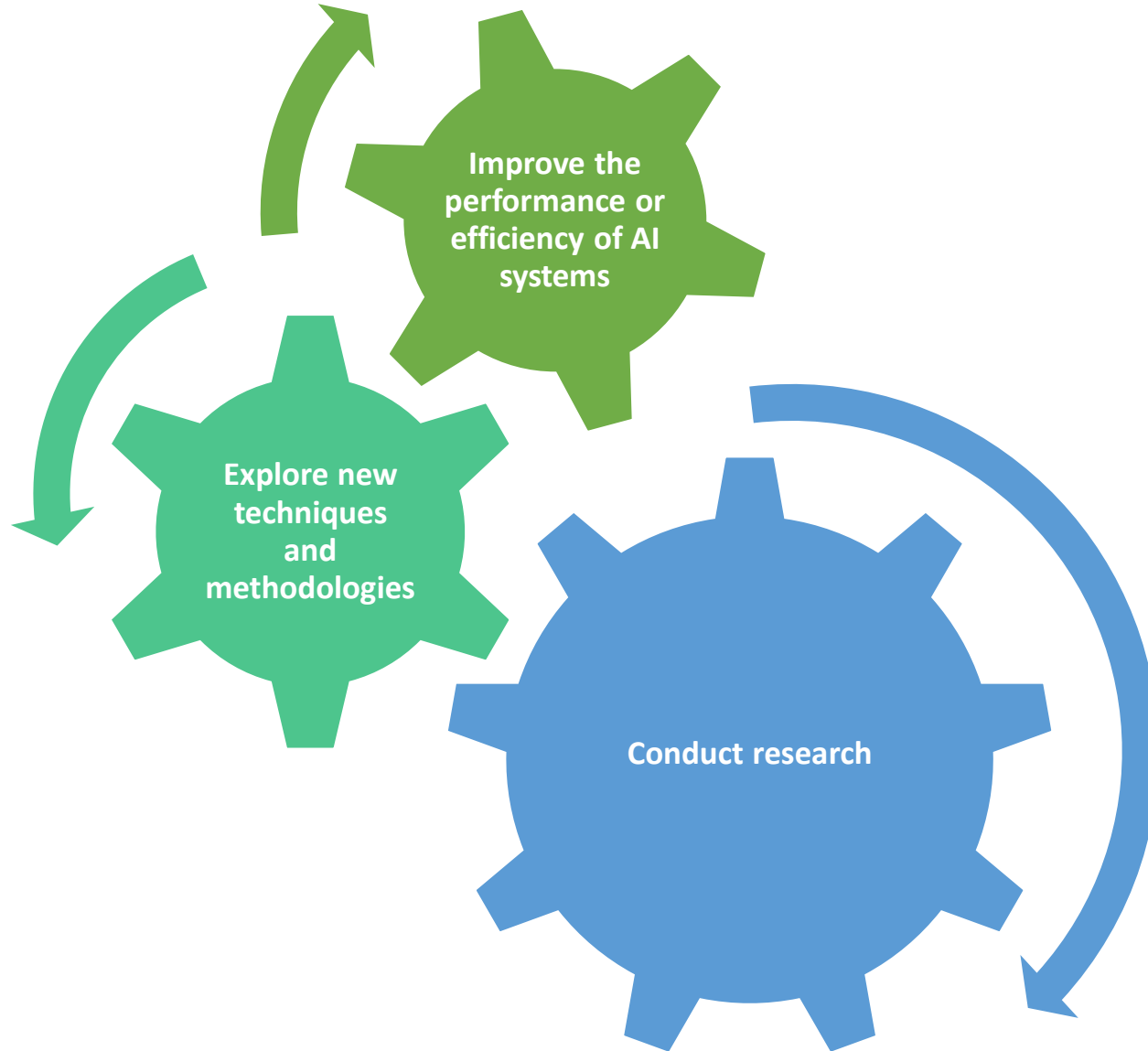
**The purpose of the section is to help you learn how to stay updated with the latest advancements in artificial intelligence and machine learning to become a Successful Artificial Intelligence (AI) Engineer**

**At the end of this lecture, you will learn the following**

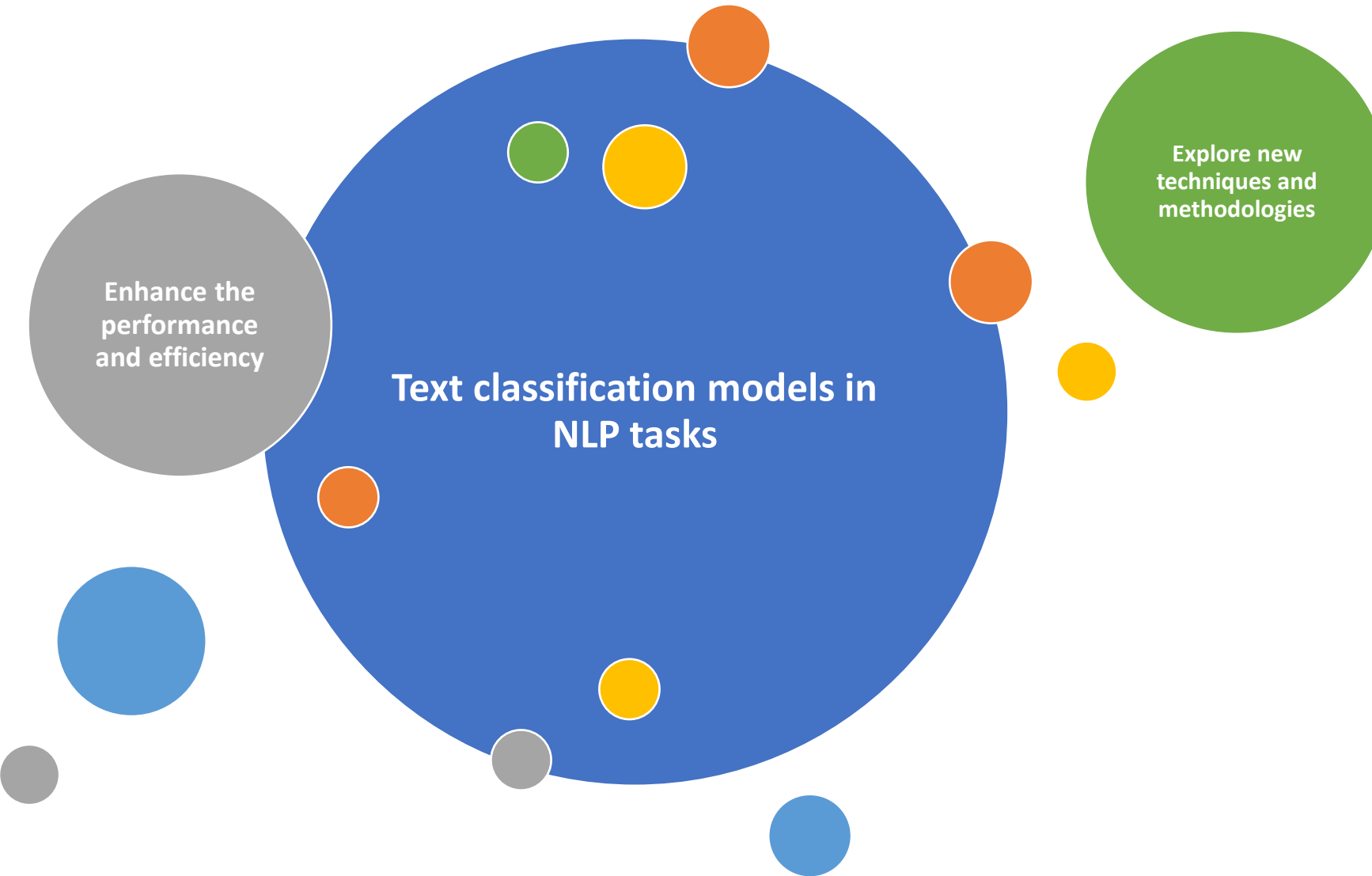
- **An example of conducting research to explore new techniques and methodologies that could improve the performance or efficiency of AI systems**



# Research and Innovation- An example



# Defined Research Objectives



# Literature Review

**Existing  
approaches in text  
classification**

**Traditional  
machine learning  
methods (e.g.,  
SVM, Naive Bayes)**

**Deep learning  
techniques (e.g.,  
CNNs, RNNs,  
Transformers)**

**Recent  
advancements,  
challenges, and  
limitations**

**Scalability**

**Computational  
complexity**

**Lack of  
interpretability.**



# Identified Research Areas

Model  
compression

Knowledge  
distillation

Attention  
mechanisms

Transfer  
learning



# Formulated Hypotheses

## Hypothesis 1

Incorporating attention mechanisms into text classification models can improve their accuracy by focusing on relevant parts of the input text.

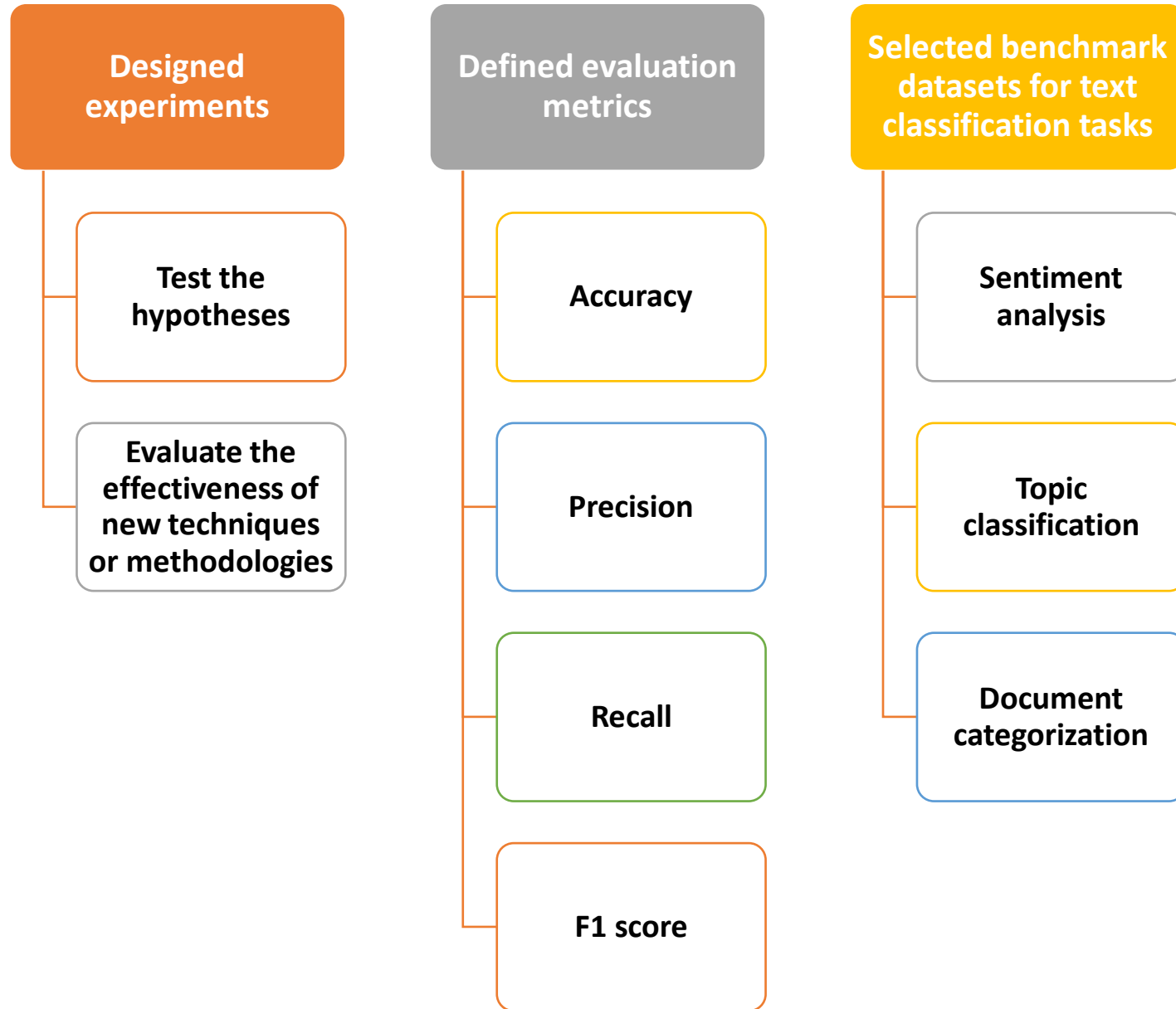
## Hypothesis 2

Model compression techniques, such as pruning or quantization, can reduce the computational complexity of deep learning models without significant loss in accuracy





# Experimental Design



# Implementation and Prototyping

Implemented

**Prototypes**

**Proof-of-  
concept  
models**

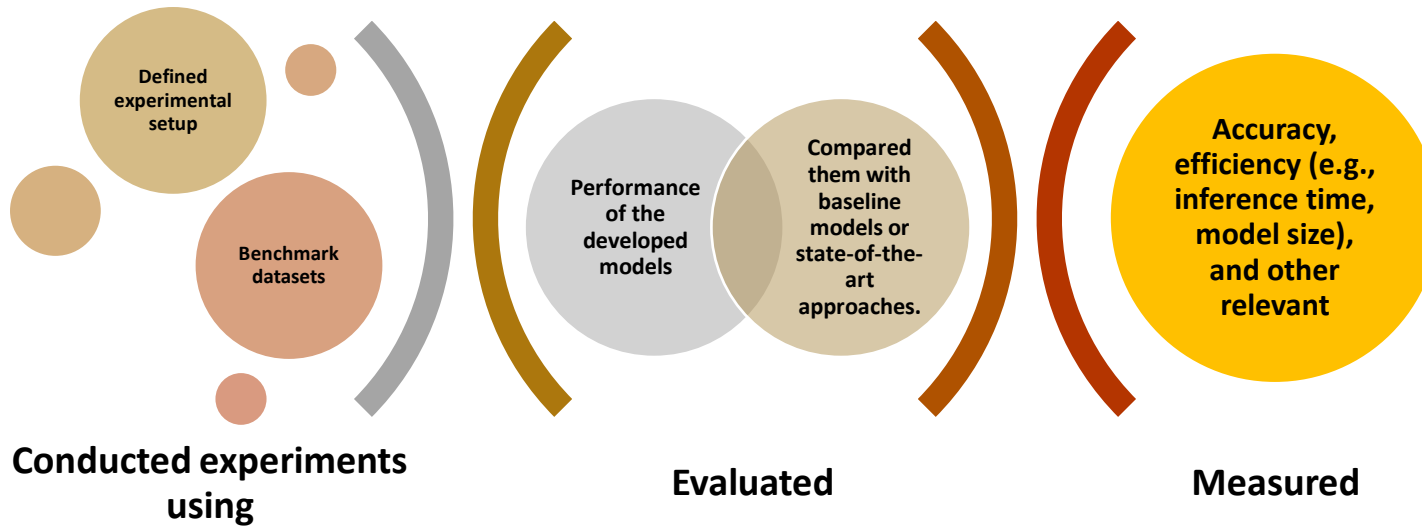
Used deep  
learning  
frameworks

**TensorFlow**

**PyTorch**



# Experimentation and Evaluation



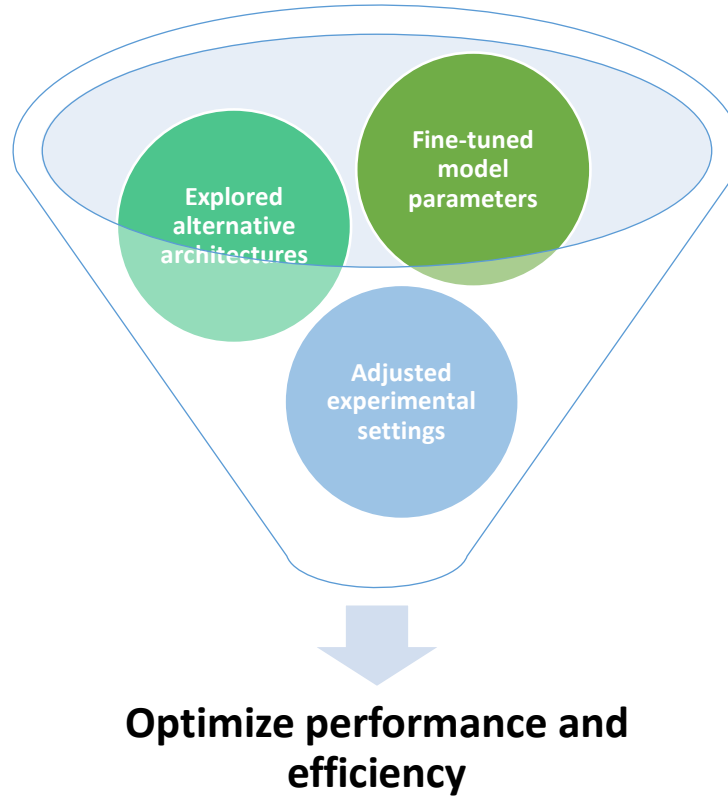
# Iterative Refinement

**Iteratively refined**

**Experimental design**

**Implementation**

**Evaluation**





# Publication and Sharing

Documented

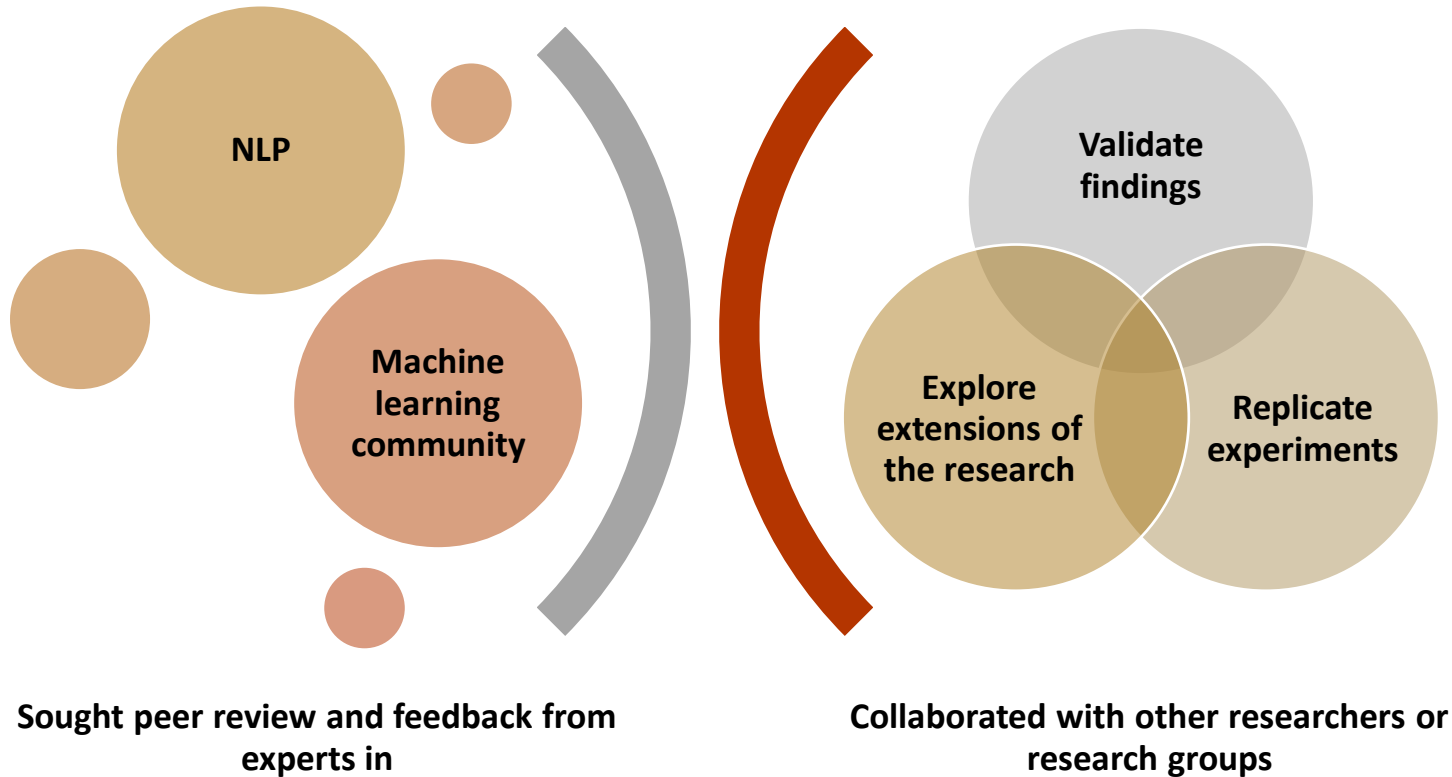
- Research findings
- Methodologies
- Results

Submitted  
the paper

- Conferences
- Workshops
- Academic journals



# Peer Review and Collaboration



# Continuous Learning and Adaptation

Stayed  
updated on

Latest  
developments and  
advancements in  
NLP research

Conferences,  
workshops, and  
publications

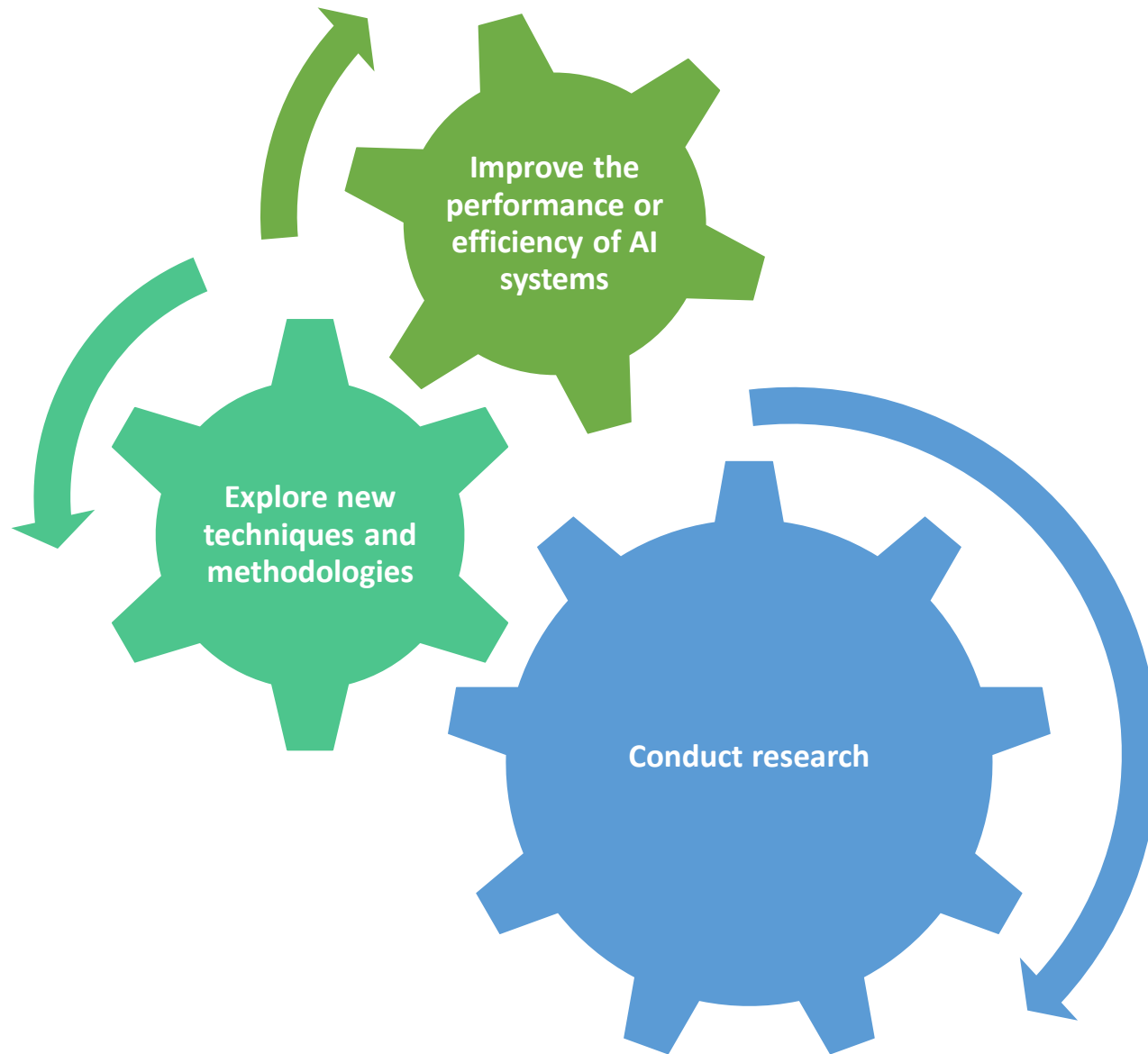
Continuously  
learnt

Experimentation,  
feedback, and  
collaboration

Refine research  
methodologies  
and approaches



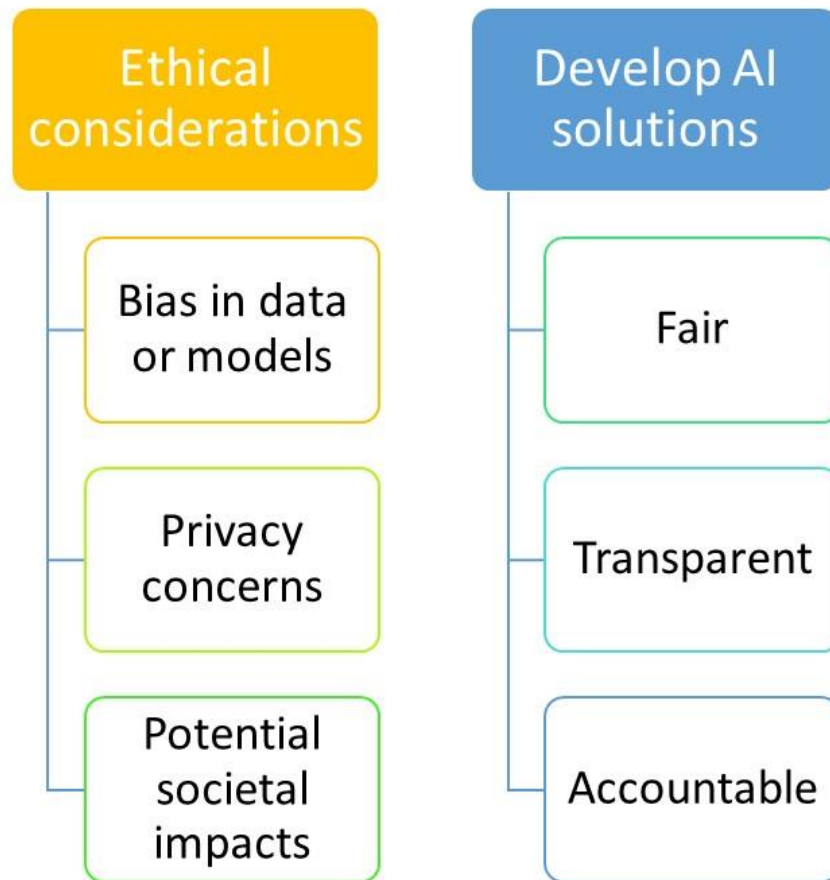
# Research and Innovation- An example





# What is next?

## Ethical Considerations



# Master in Artificial Intelligence

*Thank  
you*



## - Research and Innovation III

